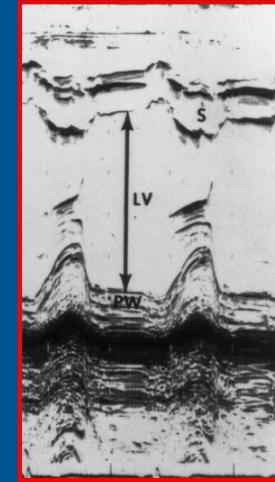


# M-Mode Echocardiography

## Is it still Alive?

Itzhak Kronzon, MD,FASE  
Lenox Hill Hospital  
New York, NY



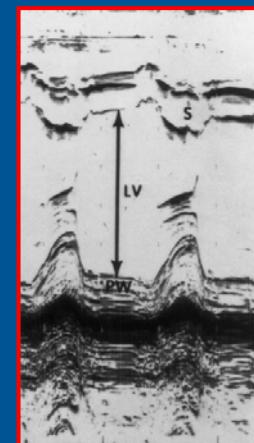
M-Mode offers better time and image resolution.

### Sampling Rate

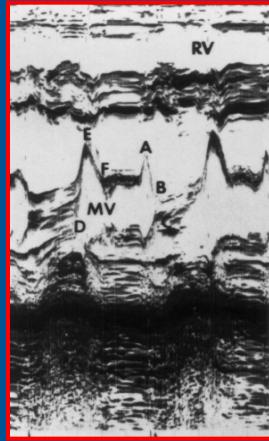
M-Mode: 1800 / sec  
2D: 30 / sec

### Disadvantages

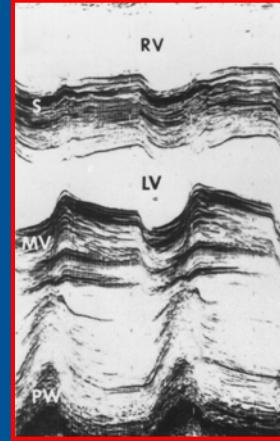
1. Single Dimension (depth only)
2. Nonperpendicular orientation  
(always use 2D guidance)



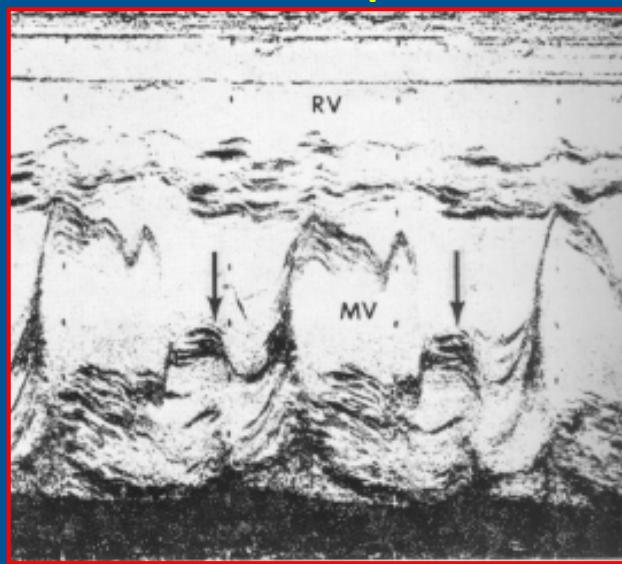
Normal MV



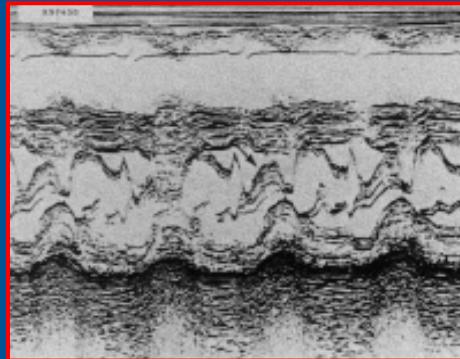
MS



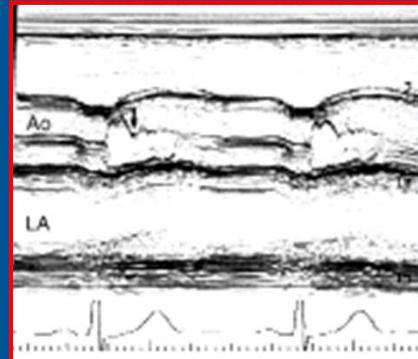
MV Prolapse



## M-Mode in HOCM

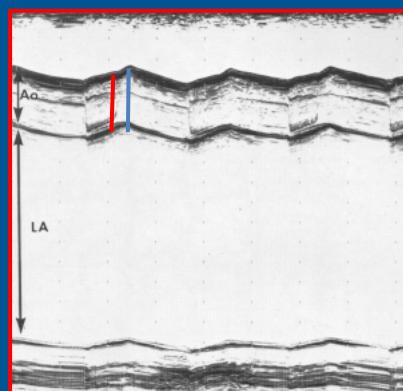


ASH / SAM



Mid-systolic AV Closure

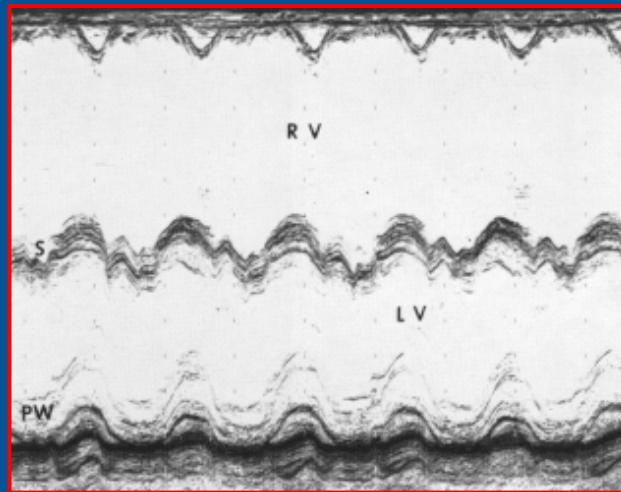
## Marked LA Dilation in pt with MS



IVR

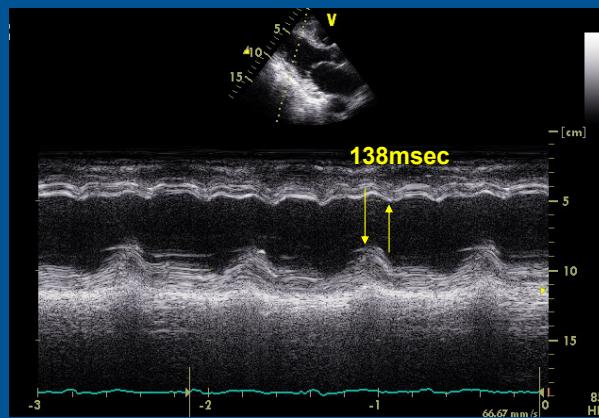
Note absence of early diastolic rapid ventricular filling and short IVR

## ASD with Large L to R Shunt



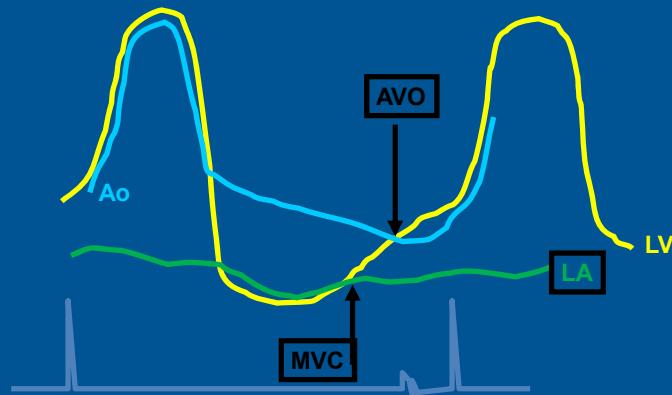
Note markedly dilated RV and “paradoxical” septal motion

## Dyssynchrony by M-Mode -LBBB

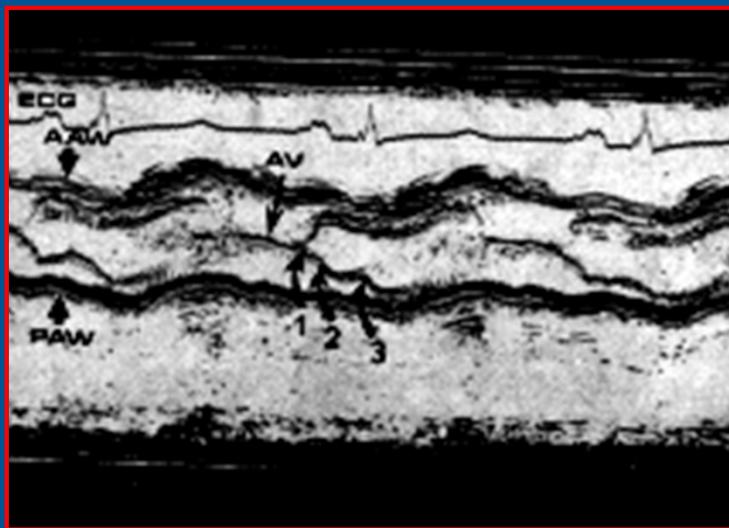


Dyssynchrony of >130msec is associated with good CRT response  
(sensitivity 100%, specificity 63%)

## Severe Aortic Regurgitation

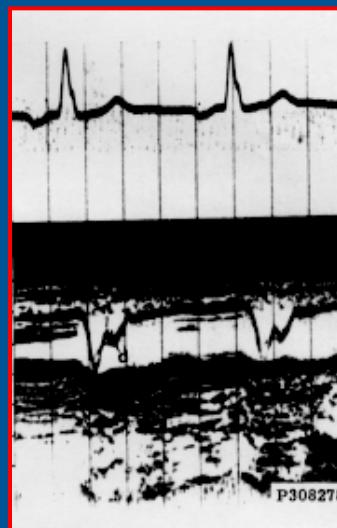


## Premature aortic valve opening



## Polling Question # 1

### Pulmonic Valve M-Mode

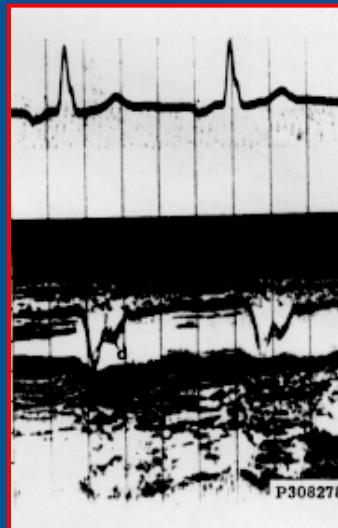


**37 year old woman with dyspnea and systolic murmur**

**What is the diagnosis?:**

- 1. Valvular PS**
- 2. Pulmonary HTN**
- 3. Constrictive pericarditis**
- 4. Subpulmonic stenosis**

## Pulmonic Valve M-Mode

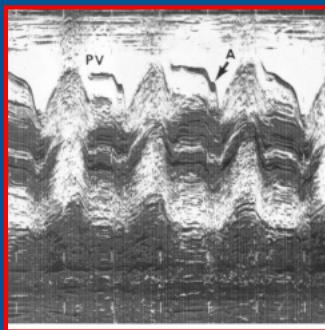


ANSWER:

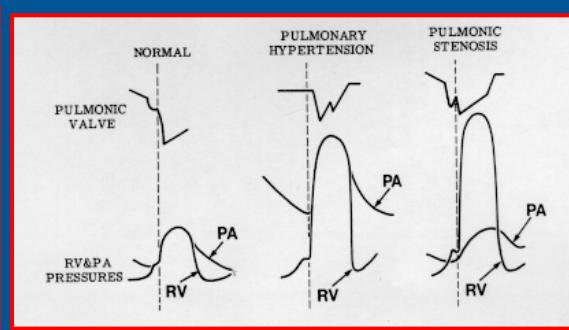
B. Pulmonary HTN

Note the absence of A-dip in spite of NSR and also the “flying W” pattern

## Pulmonic Valve M-Mode

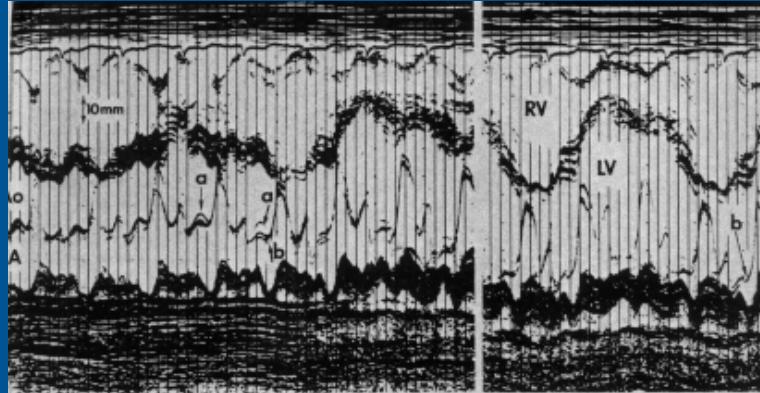


Normal PV

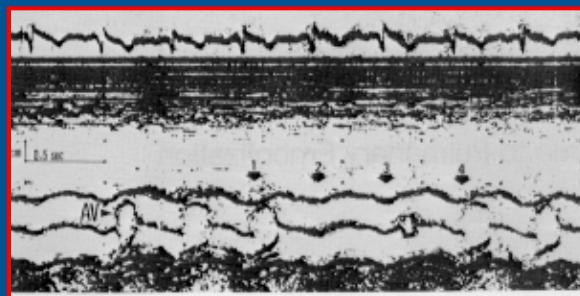


Feigenbaum, Echocardiography, 3rd ed.

Respiratory Variation in Ventricular Sizes  
Pulsus Paradoxus  
Cardiac Tamponade

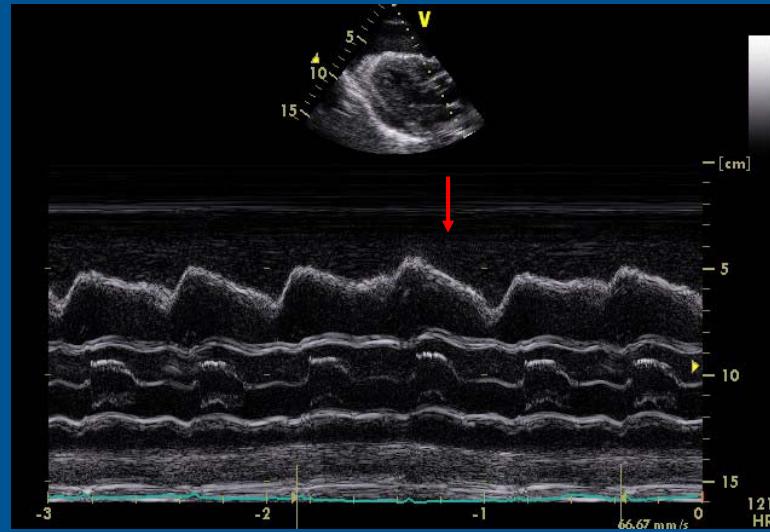


M-Mode in Pulsus Paradoxus

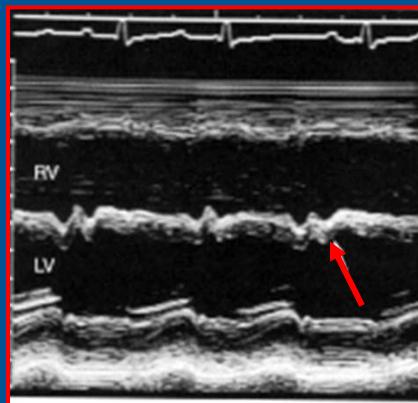


Marked respiratory variation in aortic valve opening

## RV diastolic collapse

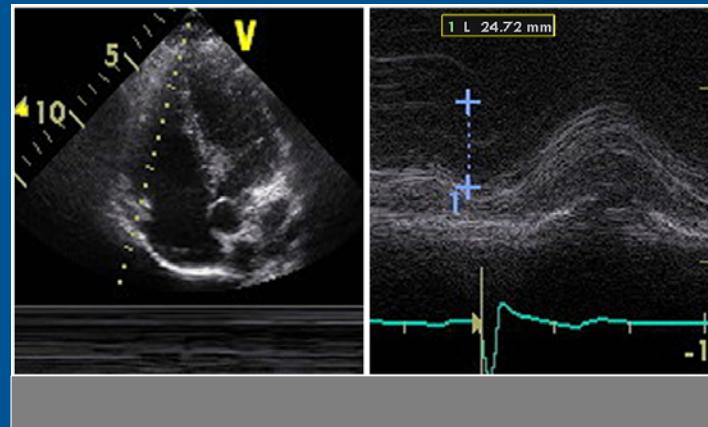


## M-Mode in Constrictive Pericarditis



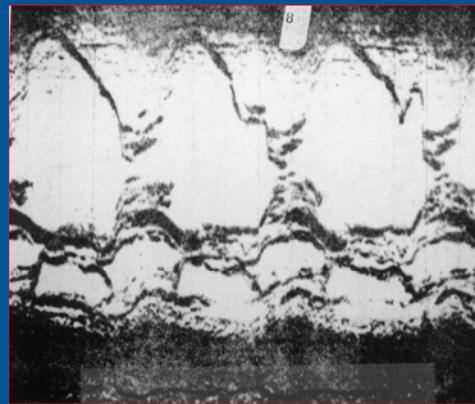
Note the diastolic  
Septal “bounce”

Tricuspid Annular Plane Systolic Excursion (TAPSE)  
Mitral Annular Plane Systolic Excursion (MAPSE)



Markers of global ventricular systolic function

Polling Question #2



**47 year old female with palpitations. What is the diagnosis?**

- A. ASD (secundum)
- B. Ebstein's anomaly
- C. Intraaortic Balloon
- D. Arrhythmogenic RV Dysplasia